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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/736,183	12/15/2003	Lucas D. Barkley	2003-0504.02	4334
21972 7590 07/09/2007 LEXMARK INTERNATIONAL, INC. INTELLECTUAL PROPERTY LAW DEPARTMENT 740 WEST NEW CIRCLE ROAD BLDG. 082-1 LEXINGTON, KY 40550-0999			EXAMINER NGUYEN, LAM S	
			ART UNIT 2853	PAPER NUMBER
			MAIL DATE 07/09/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/736,183

Applicant(s)

BARKLEY ET AL.

Examiner

LAM S. NGUYEN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 2-6 and 8-10 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-29 is/are allowed.
- 6) ☒ Claim(s) 1,7,11,13-17 and 30-32 is/are rejected.
- 7) ☒ Claim(s) 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claim 30 is rejected under 35 U.S.C. 102(b) as being anticipated by Umezawa et al. (US 6276776).

Umezawa et al. discloses a method for providing a plurality of fire pulses (*FIG. 3: Four fire pulses*) in an ink jet printer, comprising the step of producing a plurality of fire signals specific to a particular color (*FIG. 3: Four fire pulses, each associates with a particular printhead. Column 10, lines 8-10: A plurality of recording heads corresponding to a plurality of inks different in color*), each fire signal of said plurality of fire signals being asserted at a different timing than other of said plurality of fire signals (*FIG. 3: Each of four pulses is asserted at one timing period different than that of the other three*), wherein each fire signal of the plurality of fire signals is used to separately address a respective corresponding group of nozzles on a printhead (*FIG. 3: Each fire pulse addresses group of all nozzles in a head*).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 7, 11, 13-17, and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over the third embodiment associated with FIGs. 7-8 of Kao et al. (US 2002/0018086 A1) in view of the fourth embodiment associated with FIGs. 9-10 of the same prior art.

The third embodiment (associated with FIGs. 7-8) of Kao et al. discloses a method for providing a plurality of fire pulses (*FIG. 7, elements 335 and 338*) in an ink jet printer comprising a printhead carrier (*FIG. 13, element 520: A corresponding carrier that carries the ink jet printhead*) and a controller communicatively coupled to said printhead carrier for producing a plurality of fire signals (*FIG. 13, elements 510, 535, 538, 500*), comprising the steps of:

producing a plurality of fire signals specific to a particular color (*FIG. 7: The first driving signal and the second driving signal are provided to the printhead 360 for firing the color ink contained in the printhead*), wherein each fire signal of the plurality of fire signals is used to separately address a respective corresponding group of nozzles (*FIG. 8: During the period T1-T2, while the first driving signal addresses the group of nozzles associated to R1, the second driving signal addresses to other groups of nozzles associated to R2-R4*).

The third embodiment of Kao et al., however, does not teach wherein each fire signal of said plurality of fire signals being asserted at a different timing than other of said plurality of fire signals and combining said plurality of fire signals to form a composite fire signal that maintains said different timing and specific to the particular color, wherein each of said plurality of fire signals includes a prefire signal and mainfire signal, which are actuator fire signals, and wherein said combining step includes at least one of said plurality of fire signals interlaced with another

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of said plurality of fire signals, wherein said controller forms a plurality of composite fire signals, each including a corresponding plurality of actuator fire signals.

The fourth embodiment of Kao et al. teaches wherein each fire signal of said plurality of fire signals being asserted at a different timing than other of said plurality of fire signals (*FIG. 10, elements 435, 438: The first and second heating pulses are provided at a different timing*) and combining said plurality of fire signals to form a composite fire signal that maintains said different timing and specific to the particular color (*Fig. 10: The first and second heating pulses, specific to the color ink contained in the printhead, are combined in the period T1-2 to produce the combination signal R1, in the period T2-3 to produce the combination signal R2, etc.*), wherein each of said plurality of fire signals includes a prefire (*FIG. 10: The first heating pulse*) signal and mainfire signal (*FIG. 10: The second heating pulse*), which are actuator fire signals, wherein said combining step includes at least one of said plurality of fire signals interlaced with another of said plurality of fire signals (*FIG. 10*), wherein said controller forms a plurality of composite fire signals, each including a corresponding plurality of actuator fire signals (*FIG. 9: Signals R1-R4*).

Therefore, it would have been obvious for one having ordinary skill in the art at the time invention was made to modify the driving signals disclosed by the third embodiment to assert the driving signals at different time as disclosed by the fourth embodiment. The motivation for doing so would have been to be able to combine the driving signals while maintaining the timing difference as taught by the fourth embodiment (*FIG. 9-10*).

Allowable Subject Matter

3. Claims 18-29 are allowed and the reasons for allowance were indicated in the previous office action. Claim 12 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding to claim 12: The primary reasons for the indication of the allowability of the claim is the inclusions therein, in combination as currently claimed, of the limitation that wherein said plurality of composite fire signals is associated with a plurality of ink colors is neither disclosed nor taught by the cited prior art of record, alone or in combination.

Response to Arguments

Applicant's argument filed 5/14/2007 regarding to claim 30 has been fully considered but they are not persuasive because four Umezawa's fire pulses (FIG. 3), each separately addresses each group of nozzle groups on the print head, wherein the print head comprises four nozzle groups: First head, second head, third head, and fourth head.

Applicant's arguments with respect to claims 1 and 7 have been fully considered but they are not persuasive.

First of all, in response to the applicant's argument that Kao's FIG. 7 does not clearly teach separately address a corresponding group of nozzles, the examiner cites that the first driving signal and the second driving signal separately address a group of nozzles associated with the combination of each R1, R2, R3, R4 and each C1, C2, C3, C4.

In addition, the applicant asserted that the combination did not show advantages or beneficial. It is the examiner's point of view that the combination would result to assert the driving signals at different time to reduce power consumed at a given time.

Regarding to claim 11, in response to the applicant's argument that the combination did not teach a plurality of composite fire signals, the examiner cites that Kao's FIG. 9 shows the combination of the first and second heating pulses results of a plurality of composite signals at R1-R4, C1-C4.

Regarding to claim 12, the applicant's argument has been found persuasive; as a result, the claim rejection has been withdrawn.

Regarding to claim 13, Kao's FIG. 10 shows that the fire signals (R1-R4 and C1-C4) includes a pulse for ejecting ink and a pulse not for ejecting ink.

Regarding to claim 16, "specific to a particular color" is broadly interpreted as a color of a particular ink in Kao's printing apparatus.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM S. NGUYEN whose telephone number is (571)272-2151. The examiner can normally be reached on 7:00AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN D. MEIER can be reached on (571)272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Lam Son Nguyen', is positioned above the printed name.

LAM SON NGUYEN